

DR. HARVEY B. HAAG -- Deposition taken on October 31,
1959 at Richmond, Virginia, on
behalf of plaintiffs in Green v.
The American Tobacco Company.

APPEARANCES:

Lawrence V. Hastings, Esq. -- for plaintiffs

David W. Dyer, Esq. -- for defendant

ATX02 0244711

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE
SOUTHERN DISTRICT OF FLORIDA
(Miami Division)

MARY GREEN, a widow,
(Plf.)

-VS-

No. 8505-M-Civil

AMERICAN TOBACCO COMPANY, a
New Jersey Corporation
(Def.)

(and)

EDWIN GREEN JR., Administrator of the
Estate of Edwin Green, deceased
(Plf.)

-VS-

No. 8070-M-Civil

AMERICAN TOBACCO COMPANY, a
New Jersey Corporation
(Def.)

The depositions of Dr. Harvey B. Haag,
and others, taken at ten a.m. on October 31, 1959, at
the Research Laboratory, American Tobacco Company, 400
Petersburg Pike, Richmond, Virginia, before Patricia Giles,
Notary Public for the State of Virginia at Large; said
depositions being taken in behalf of the plaintiffs in the
above styled cases.

APPEARANCES

Lawrence V. Hastings, Esquire, counsel for plaintiffs;

David W. Dyer, Esquire, of counsel for the defendant.

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I N D E X

	<u>DIRECT</u>	<u>GROSS</u>
Dr. Harvey B. Haas	3	
Hiram R. Hammer	43	
Dr. William R. Harlan	93	
Edward S. Harlow	131	

October 31, 1959.

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MR. DYER: It is stipulated by counsel that all objections will be reserved to the time of trial, except as to the form of the questions.

MR. HASTINGS: Except as to the leading questions, all right.

MR. DYER: Can we also stipulate that the signing, sealing, filing, and certification of the depositions are waived?

MR. HASTINGS: Yes, sir.

DR. HARVEY B. HAAG, a witness introduced in behalf of the plaintiff, first being duly sworn, deposed as follows:

DIRECT EXAMINATION

BY MR. HASTINGS:

Q Dr. Haag, you are connected with the University here, I believe?

A I am professor of pharmacology at the Medical College of Virginia.

Q Doctor, you have done some original work, I believe, in terms of the effect of nicotine on various animals?

A Yes.

Haag - Direct

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Q Doctor, can you tell us just what this work was, what the results were, in as simple language as you can?

A In other words, as I understand it--let me if I may just direct your attention to what I am referring to, because I dare say you have done considerable work in this line, but did you inject nicotine into the animals, or some substance which contained nicotine, to observe the changes in blood pressure, and the changes in the pulse rate?

A Yes, sir.

Q With respect to the amount of nicotine, and the corresponding change in the blood pressure, was any correlation shown to exist there?

A Yes. In one series of experiments that have been reported in the literature, we demonstrated that when given intravenously, the effect of the solution prepared from cigarette smoke appeared to be roughly proportional to the nicotine content of the smoke solution.

Q Then am I correct in that the more nicotine you have the higher the blood pressure was, and the lower the amount of nicotine the lower the blood pressure?

A That would be true, within certain limits--flour.

Q As you added more nicotine to the solution the blood pressure went higher?

A Yes. Within the limits of the experiment we

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1 did.

2 Q With respect to the pulse, as you added the
3 nicotine, did the pulse rate increase, too?

4 A We made no pulse determination, as I recall,
5 on the animals. I would have to refresh my memory by
6 reference to the paper there.

7 Q With reference to those experiments, did you
8 draw any conclusion with respect to your own opinion as to
9 whether the same thing would be true in a human being;
10 that is to say the greater the amount of nicotine, the
11 higher the blood pressure, in your opinion now?

12 A I don't recall exactly what we concluded
13 formally in the paper that we finally published.

14 Q Let me ask you this then. Based upon your
15 best knowledge of the subject as a whole, regardless and
16 rather than referring particularly to the specific paper
17 you published, but just calling upon your own knowledge,
18 would you say it would be a fair opinion to say that the
19 greater the amount of nicotine if you were administering it
20 as an experiment to a human being, that the higher the
21 blood pressure would go

22 MR. DYER: I object to that as being
23 leading.

24 Q Doctor, did you have an opinion then one way
25 or another, as to whether or not there is a correlation

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Haag - Direct

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1 in human beings between the amount of nicotine administered
2 and the blood pressure observed?

3 A Yes.

4 Q What is that opinion?

5 A That opinion is to the effect that the nico-
6 tine does play a role in the pressor effect of cigarette
7 smoking.

8 Q Just what does Pressor mean?

9 A Pressor effect on blood pressure.

10 Q That means raising the blood pressure?

11 A Yes.

12 Q With respect to the possible effects of
13 addiction, and the use of tobacco, let's specifically say
14 cigarettes, can you tell us what your opinion is in that regard,
15 sir?

16 A Well, tobacco is not an addicting drug.

17 Q You do not feel it is?

18 A Or an addicting substance, no.

19 Q When you speak of addiction, isn't it true
20 that you can speak of either psychological addiction or
21 physical addiction?

22 A Well, addiction would embrace both the
23 psychological and physical dependence.

24 Q Do you feel that tobacco has no addicting
25 qualities insofar as psychological dependence, or

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Haag - Direct

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inter-dependence?

A It would have a slight effect in terms of a psychological response on stopping smoking, but that does not make it an addicting drug, or an addicting substance.

Q Why would that be?

A Because an addicting substance, that indicates that the individual becomes dependent upon the presence of that material in their body for the normal functioning. And when that material is withdrawn, then there are abnormalities, which we refer to as withdrawal phenomena. And that is one of the criteria of an addicting drug.

Q Have there or have there not been written studies in literature with respect to the addicting qualities in cigarettes and in tobacco?

A There might have been. But I believe that they are probably speaking there of the psychological habituation rather than that we would call addiction.

Q What do you mean by psychological habituation rather than addiction? Psychological habituation as opposed to addiction, I mean?

A Well, all of us get accustomed to certain habits. The coffee break, for instance. If we do not have the coffee break we miss it psychologically. And cigarette smoking falls in the same class as coffee drinking, in that

regard.

Q Have you seen, though, studies, - Are you aware of the fact that there have been studies with respect to the addicting qualities, I am speaking now not just with respect to just the psychological habit, but actual physiological addiction?

A You mean now?

Q Have you seen such studies or heard of such studies?

A You mean now, whether there have been -

Are you asking about now, where there has been withdrawal phenomena as you and I recognize or -

Q Such as in morphine addiction?

A No. I am not familiar with those.

Q You have not heard of any such a thing?

A No, I have not.

Q With respect to the cardiovascular system, doctor, can you tell us whether you have seen any studies that relate to smoking of cigarettes with an increase in hardening of the arteries, let's say?

A No. I think that is related completely to cholesterol metabolism.

Q And you see no reference, or have heard any comments about that situation might increase the amount over and above that caused by possible cholesterol?

A There have - - Now there might have been

1 references, but I do not recall any at the moment. But
2 certainly I think everyone has concluded now that that is
3 related to disturbances in cholesterol metabolism.

4 Q Do you personally smoke?

5 A Yes, sir. I smoke cigars.

6 Q How many years have you smoked?

7 A I would say about forty-two to forty-four
8 years.

9 Q Doctor, would you define what a carcinogenic
10 substance is?

11 A A carcinogenic substance is a substance
12 which experimentally or otherwise has been found to lead
13 to or to be associated with the production of malignant
14 changes.

15 Q Malignant changes. In lay terms, that is
16 referred to as cancer?

17 A Yes.

18 Q In cigarettes, what substances are there
19 that have been incriminated as carcinogenic, or carcinogenic
20 substances?

21 A You mean substances that have been removed
22 from cigarette smoke? We are not talking about whole
23 cigarette smoke now?

24 Q No. Well, let me start off a little bit
25 here. To get at possible carcinogenic substances, what is

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the procedure? Do you use the smoke, or the condensate, or just what?

A No. There are various chemical manipulations through which the smoke is processed, and as a result of this, compounds are prepared, which then are studied for their possible carcinogenic effect.

Q But to get into these compounds, do you take the smoke, or first take the distillate, or the condensate to first determine if there are any compounds --

MR. DYER: I want to object to this line of questioning on the basis that it assumes that there are carcinogenic substances in smoke or tobacco.

Q Did you understand the question?

A I don't know if --

NOTE: Foregoing question read back.

Q Do I make myself clear?

A Not quite.

Q To isolate or attempt to isolate any particular compounds, do you use the whole smoke, or do you use the condensate from the smoke?

A Well, I have done none of this.

Q I understand that, but in order to isolate it, how would one go about it?

A I would have to refer to the papers. My impression is that one person might do it one way, and another person might do it another way.

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11

Q Is it in the long run the condensate that the compounds come from, or the smoke itself?

A That again I wouldn't know. If you took a poll of the papers, I don't know whether, I don't know which ones have been used predominantly.

Q Have you heard that any have come from the whole smoke itself?

A Any substances that we applied to the skin of animals leads to carcinogenic changes, you mean?

A Yes.

A Yes. I have heard of extracts being made from smoke, which when applied to animals have led to carcinogenic changes.

Q The fact that it can be brought about in an animal, does that in your mind, your own personal opinion, lead to any conclusion as to whether the same occurs in a human being?

A No, sir.

MR. DYER: I object to the form of the question. It is assuming matters that have not been testified to by this witness. It assumes the presence of substances that there has been no showing exist either in tobacco or smoke.

Q Doctor, would you tell us your opinion as to

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the relationship, if in your opinion any relationship exists, as to the studies which have used tobacco tar, or tobacco distillate, or tobacco condensate, or tobacco smoke on animals and produced malignant changes - - And this relationship, if any in your mind, if there is any relationship which exists to the production of cancer in human beings through smoking?

MR. DYER: I object to that question

because it refers to literature which is not specified. It is an improper question based upon literature which in and of itself is not admissible.

Q Do you understand my question, Doctor?

A Yes, sir.

Q Would you answer it, please?

A No. In my opinion there is no relationship between the findings that I have in mind as I picture what you have in mind.

Q Would you explain that? May you feel there is not any relationship?

A Because I do not believe that the results obtained on the skin of a rat, for instance, are applicable to the mucous membrane or respiratory tract. Nor do I think, for instance, that the preparation applied to the skin of the rat represents the chemical situation that

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13

exists in whole cigarette smoke.

Q Have any tests been conducted to your knowledge by the American Tobacco Company with respect to their tobacco which is used in Lucky Strike, and so forth, to determine whether there are carcinogenic substances or not carcinogenic substances present? I mean by the American Tobacco Company itself, or under their supervision, or by grant from them?

A That I would not be able to answer specifically. They, of course, are members of the Tobacco Industry Research Committee, which supports work of very many types.

The only bit of information, I suppose, that might bear along those lines would be a test that I ran several years ago, exposing a rat to cigarette smoke for the entire life span, daily, fourteen times a day, with the result that the only difference between the so-called smoke rats and the control rats was that the smoked animals did not attain the same weight gain as the controls. But in terms of longevity, if anything, the smoked animals lived a little bit longer than the controls. There was no difference in pathology and blood pressure, and whatnot. And a tract of that has been published.

Q The lungs were sectioned and so forth, and the tissues were sectioned?

A Everything, yes.

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Q Do you know of any other studies that have ever been conducted by American Tobacco Company to determine whether there are carcinogenic substances present? How about painting the animals with tar, did -

A I have never done that, no. These animals were subjected to cigarette smoke, which is the only way to study, of course, the matter of health problems that might be involved in cigarette smoking. Now as to what else they have done, I think it would be better to ask one of the officials of the company here, because I have not done any of that.

Q In the past they have called upon you, though, have they not, to do some scientific research for them? That is by grant or otherwise?

A Oh, yes.

Q But they have never called on you specifically, for instance, to attempt to see whether these carcinogenic substances, or supposed carcinogenic substances, will cause cancer in mice by painting, or rabbits, or anything like that?

MR. DYER: I object to the question on the grounds that it is not only leading, but it assumes that there are carcinogenic substances in smoke, or in tobacco.

Q Smoke stream then?

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1 A No. They have not called upon me. If they
2 had, I would object to that type of research.

3 Q Do you know of any such persons they have
4 called upon, of your own personal knowledge?

5 A No, sir.

6 Q Is there presently, or has there been in the
7 past two or three years, any research - - now that is
8 either you, or the medical school that you are affiliated
9 with, have you conducted on behalf of the American Tobacco
10 Company to determine the composition shall we say of the
11 tobacco, the tobacco smoke, the condensate, or the distillate,
12 the paper?

13 A Chemical composition?

14 Q Yes.

15 A No, sir.

16 Q Is arsenic considered to be a carcinogenic
17 substance?

18 A Well, it is listed in a compendium of so-called
19 carcinogenic substances. I think that is edited by
20 Hartwell. But there again we run into situations. For
21 instance, while Hartwell does not indicate this, I have been
22 informed that even fruit juices can be carcinogenic under
23 certain conditions.

24 Q But the compendium of so-called carcinogenic
25 substances does not include fruit juices, does it?

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1 A Not that I recall, no.

2 Q Does the Public Health Service put out a
3 list of so-called carcinogenic substances?

4 A I don't recall whether Hartwell's listing
5 is a Public Health Service publication or not, frankly.

6 Q With respect to the substances that by painting
7 them on the skin of animals brings about these changes,
8 the malignant changes, what are they called, what is the
9 chemical composition called? Is there a class name for
10 them?

11 MR. DYER: I object to the form of the
12 question because it seems to imply that Dr.
13 Haag accepts those experiments that are
14 referred to and so far as his testimony is
15 concerned, he has not said he accepted any
16 such experiments. And the simple use of the
17 words "painting on the mice's backs" does
18 not refer to any particular experiment which
19 has been identified.

20 MR. HASTINGS: I don't know whether
21 my question was clear. Read it back.

22 NOTE: Foregoing question read back
23 to the witness.

24 MR. DYER: To add to my objection,
25 the word "substances" might include anything.

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17

I don't know what the question means.

Q As a pharmacologist, do you know what the question means, Doctor?

A Would you rephrase it, please?

Q Let me ask this question. Are there substances called higher aromatic polycyclic hydrocarbons in tobacco smoke?

A Well - - In tobacco smoke, you say?

Q Yes.

A There have been reports in which it has been alleged that these aromatic polycyclic compounds have been isolated at least from smoke preparations. Now whether this allegation has gone so far as whole smoke itself is concerned, I am not in a position to say. But these are allegations, in my opinion.

Q Doctor, your knowledge is not entirely based on things you have personally observed, or things that you have personally experimented with?

A No.

Q Some of your knowledge comes from reading shall we say the works that other people have done?

A A good deal.

Q In that light, Doctor, do you accept these experiments that you speak of that have been alleged to show that the smoke, or the condensate of the smoke

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Haag - Direct

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1 contains these higher aromatic polycyclics, or do you
2 reject it?

3 A I have to reject it. That is on the basis
4 of discussions I have had with chemical friends through
5 the years, on the basis that these -- well, on the basis
6 they have not been isolated per se in pure form, and
7 identified in pure form in a manner as I understand a good
8 quantitative chemist does a job.

9 Q Then do I understand you do not believe that
10 there are any higher aromatic polycyclics in cigarette
11 smoke condensate?

12 A I don't think they have been shown to be
13 present in the smoke.

14 Q Do you know whether American Tobacco Company
15 has attempted through chemical analyses, or either them-
16 selves, or have asked other people on their behalf, to
17 attempt to identify to either prove or disprove the fact of
18 these allegations that there are these higher aromatic
19 polycyclics?

20 A That I don't know.

21 Q To your knowledge, you have not been
22 personally asked to do so?

23 A No.

24 Q From time to time would you tell us whether
25 or not you have seen in the scientific literature claims

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1 that there is a relationship between smoking and the
2 development of lung cancer?

3 MR. DYER: I object to the question on
4 the grounds that the scientific literature
5 is not specified; further on the grounds
6 that it is improper to attempt to introduce
7 through testimony inadmissible publications.

8 A Yes, sir; I have.

9 Q Have you called the attention of any of the
10 personnel of American Tobacco Company to this literature at
11 any time you have seen it?

12 MR. DYER: Same objection.

13 A I might have; I might have easily done that.

14 Q I mean, do you believe that you have or have
15 not?

16 A Well, I know in one case, for instance, we
17 wrote a paper bearing on this matter, of cancer of the
18 lung in the workers of the cigarette factories, in which
19 Mr. Hanmer collaborated.

20 Q Before that had any literature been called to
21 their attention by you, or had you discussed the fact that
22 there was scientific literature that at least alleged
23 that there was a relationship?

24 MR. DYER: Same objection.

25 A Yes. We had talked, naturally, through the

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19A

1 years about the various health allegations brought against
2 smoking, so this would fall in that general area. Not
3 only cancer allegations but other things.

4 Q Let me go back now. When to the best of
5 your recollection did you first have, if you had, any
6 discussions with personnel, Mr. Hanmer, or anyone else,
7 with respect to the possible relationship of smoking and
8 cancer?

9 A Well, I became a consultant with the Company
10 some twenty-five years ago, or more, I mean approximately
11 that. And so it could have been around that time.

12 Q And since that period of time you have had
13 other discussions with respect to whether it does or does
14 not have any relationship, have you not?

15 A We talk frequently about many of the problems
16 that come up with respect to questions involving cigarette
17 smoking and health.

18 Q I want to, if I may, specifically limit this
19 to smoking, that is the possible relationship of smoking
20 and cancer. You have discussed that with them?

21 A Oh, sure. I mean as the literature has
22 indicated.

23 Q Doctor, let me just ask you if you are
24 familiar with, or have read, or have heard of some of the
25 scientific studies? Are you familiar with the studies of

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1 Hammond and Horn, with respect to I believe it was
2 180,000 people who were followed up, and who are presently
3 living -

4 A I am familiar with it, I could not recite
5 any details at the moment, It would require that I study
6 the paper at the moment, but I am familiar with the fact
7 that they wrote the paper, and at one time I went through it
8 very carefully.

9 Q And is it correct that they drew a conclusion
10 that there was a relationship, their conclusion?

11 MR. DYER: I object to the question,
12 First it is leading, and also object to the
13 reference to literature which is not admissible
14 in evidence, and that you cannot introduce
15 publications which are not admissible through
16 the testimony of a witness.

17 A You do not have that article with you, do
18 you?

19 Q Not complete, I have an abstract.

20 A They have written a few articles, as you
21 know. There was an association, I remember very definitely.

22 Q Is it your understanding that they went further
23 and said that there was actually a causal connection between
24 smoking and cancer?

25 MR. DYER: That is objected to as

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leading, and on the grounds heretofore stated.

Q Let me rephrase my question, Doctor. Do you know whether or not they reached any conclusion, that is the Hammond and Horne people, with respect to whether there was or was not an actual causal relationship?

MR. DYER: Same objection.

A I do not recall how they worded that. They discussed the matter of causal relationship. Whether they stated it as a definite conclusion, or whether they stated it as a tentative conclusion, or whether they stated it as something that their work would indicate might be a conclusion, I don't know. I should say I don't recall at the moment.

Q Doctor, are you familiar with the work of Dr. Wynder? Have you read any of the published work of Dr. Wynder?

A Some of it.

Q Could you tell us what it was, what it had to do with?

A You mean all of it?

Q Did it have to do with statistics, or was it to do with animals, or chemicals, or what?

A Well, his work mostly has had to do with animals, in which he has painted various materials on the skin of mice, and observed the animals thereafter.

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22

1 Q What occurred thereafter?

2 MR. DYER: I object to that, on the
3 basis that it is another attempt to get in
4 through a witness the inadmissible publica-
5 tions.

6 Q Let me ask this. Do you believe his work to be
7 valid?

8 MR. DYER: We object to that.

9 A What do you mean by valid?

10 Q Let me ask you this, Doctor. When you read
11 a certain investigator's or experimenter's work, do you make
12 a valued judgment of it?

13 A Yes.

14 Q Well, did you make a valued judgment of Dr.
15 Wynder's work?

16 A With respect to the way he did his experiments
17 or -

18 Q In respect to what you have described as to
19 what he did, his experiments?

20 MR. DYER: I object to the question
21 because it simply generally describes Dr.
22 Wynder's work. I imagine he has published
23 a number of papers on a multitude of subjects.

24 A Well, it is obvious when one reads a paper
25 he reports that he has applied these materials to the skin

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Haag - Direct

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1 of mice, and that subsequently he has reported his findings.

2 Q What is your opinion of those findings, Dr.
3 Haag?

4 MR. DYER: I object, on the same
5 grounds.

6 A All I can do in terms of opinion is to state
7 that he reported that he found a certain number of malignant
8 changes in one or two of the papers having to do with
9 these particular experiments.

10 Q Are you familiar, Doctor, with the work of
11 Dr. Auerbach?

12 A Yes. I mean not that I could give any details
13 at the moment, but I know he has written in the field of
14 bronchial pathology.

15 Q What is his work, what does he do -

16 MR. DYER: I object to that question
17 as calling for this witness to testify about
18 some unidentified work that is not in itself
19 admissible in evidence, and cannot be testified
20 to, and is thus indirectly attempting to get
21 into evidence that which is not admissible
22 in the first place.

23 A I would like to see what article you are
24 referring to; frankly, I would not want at the moment to
25 pass judgment in this very general fashion concerning a

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man who has written a great deal.

Q You have some recollection that you did read Dr. Auerbach's work?

A Yes.

Q Did you ever consult with the American Tobacco Company, or the American Tobacco Company personnel with respect to Dr. Auerbach's experimental work?

A I am sure we discussed it.

Q Has anyone to your knowledge attempted to correlate or claim to correlate changes in lung tissue, pathological changes, with the degree of smoking history that they supposedly had, I mean autopsy-wise, after their death?

A I think attempts have been made, but at the moment I could not give you the specific authors or specific references, or specific findings, actually.

Q Do you know whether Dr. Auerbach attempted to do that? Was that the general area of his investigation?

A There again, I would hesitate -- I do not want to appear uncooperative -- but to make a statement regarding Dr. Auerbach's work unless I had the article available.

Q Do you have any general idea as to what his method or field of inquiry was, that is Dr. Auerbach? Was he a chemist or --

A No. My impression is that he was a pathologist.

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1 He might be a chest surgeon, Oh, I really don't know.

2 Q Are you familiar, or did you read or ever
3 discuss with the American Tobacco personnel the report of
4 the study group which was a combined effort of the American
5 Heart Association; The American Cancer Society; the National
6 Institute of Cancer; and the National Heart Institute?
7 Are you familiar with the report I am referring to?

8 A Yes, I am.

9 Q Did you ever discuss that particular report
10 with the American Tobacco Company personnel?

11 A I imagine we did. We discussed so many things
12 that it is rather difficult for me to catalog absolutely
13 everything we have discussed. I do not keep a diary of what
14 I do, but I should think we might have talked about it.

15 Q Could you give us again what your opinion is
16 of that, of their findings?

17 MR. DYER: I object to that on the basis
18 that it is an attempt to inject into the record
19 through this witness a publication which has
20 not been identified, and if it were properly
21 identified it would be inadmissible.

22 A There again, I would have to have an opportunity
23 of going over the article.

24 Q Do you know of any of the people who parti-
25 cipated in that particular study?

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1 MR. DYER: Same objection.

2 A Do you have the names?

3 Q I mean, do you know any of the names of any
4 of them?

5 A At the moment I do not even really recall
6 the names. I am sure you do.

7 Q Are you familiar with Dr. Heller of the
8 National Cancer Institute?

9 A I don't know him personally. I have heard of
10 him but I don't know him personally.

11 Q Has to your knowledge the Public Health Service
12 of the U.S. Government taken any stand with respect to this
13 particular question of smoking and cancer?

14 MR. DYER: Object to that on the same
15 grounds.

16 A It is my impression that Dr. Burney issued a
17 statement to the press. Now the exact wording of that,
18 I don't know. That I suppose represents the feeling of the
19 Public Health Service.

20 Q Do you know of your own personal knowledge,
21 naturally based upon your own education, your reading, and
22 wherever your knowledge comes from, whether there has been
23 an increase in lung cancer over and above the increase in
24 other types of cancer of the body in the past twenty years
25 or so?

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Haag - Direct

27

1 A Well, there seems to have been an increase
2 in the reported incidence, which according to many observers
3 at least is due to a better diagnosis.

4 Q But has it been limited, though, to lung cancer,
5 I mean the diagnosis being better there, or all cancers,
6 in other words, has it come to your attention that lung
7 cancer in particular has increased or at least allegedly
8 increased over all other types of cancer?

9 A Well, as I said, the reported rate of lung
10 cancer has increased, which according to several observers
11 reflects better diagnosis.

12 Q There is not unanimity of opinion as to that
13 being the reason, is there?

14 MR. DYER: That is objected to as
15 leading.

16 Q Tell us whether or not there is unanimity of
17 opinion as to that being

18 A No, no. There is not unanimity of opinion.

19 Q Are you familiar with the studies done on
20 medical doctors in England by Doll and Hill?

21 A Yes. But there again, that is in a general
22 way. At the moment I could not give any details.

23 Q In a general way, what did that have to do
24 with?

25 A That had to do with the incidence of lung cancer

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Haag - Direct

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1 and death rates from various causes, among a group of
2 physicians. Also relating to their smoking habits, as
3 obtained through a questionnaire. That is my general idea.

4 Q Do you know whether you discussed that parti-
5 cular study with the American Tobacco Company personnel?
6 Or how about Mr. Hanmer?

7 A As I said, Mr. Hastings, it is difficult for me
8 to pick out isolated papers, but I am sure that we during
9 our discussions, that this has come up. But if you should
10 ask me when and where, I just couldn't say.

11 Q In attempting to analyze the components of
12 tobacco in Lucky Strike cigarettes, have you personally
13 participated in that, or are you personally familiar with
14 it? I mean on the part of the American Tobacco Company?

15 A Are you talking about tobacco itself?

16 Q Yes.

17 A No.

18 Q Is carbon monoxide a carcinogen?

19 A Carbon monoxide?

20 Q Yes.

21 A It is not listed in any of the compendia
22 which list the so-called carcinogens.

23 Q Does cigarette smoke contain carbon monoxide?

24 A I believe - -

25 MR. DYER: I object to the question

ATX02 0244740

Haag - Direct

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1 on the ground that it includes other brands
2 than Lucky Strike.

3 Q Would there be a difference in the smoke of
4 Lucky Strikes say with respect to these chemicals such
5 as carbon monoxide, and other cigarettes?

6 A You are restricting it now to carbon monoxide?

7 Q Yes.

8 A I have not seen a comparison of the carbon
9 monoxide content of Lucky Strike cigarettes versus other
10 competing brands.

11 Q But in generalities, qualitatively, wouldn't
12 it be true that cigarettes are the same, they may be
13 different quantitatively, as far as the chemical compounds
14 are concerned but probably - -

15 A You are probably right, but I think - -

16 MR. DYER: Objection, the question is
17 leading.

18 Q I will rephrase the question. Tell me
19 whether or not there would be differences qualitatively,
20 in your best opinion?

21 A Well, I think the best way to answer that
22 would be that I would expect to find a trace of carbon
23 monoxide in cigarette smoke.

24 Q To overcome the legal objection, which is the
25 reason I am reframing the question, I want to go back
to an earlier question.

ATX02 0244741

Haag - Direct

30

NOTE: Question on page 29, line 11,
is read back by the reporter.

Q I will reframe the question now, simply
because it has been objected to.

MR. DYER: Let us get clearly exactly
what was read back. Dr. Haag started to
answer by saying "probably" something. Let
him finish.

Q If that was not your complete answer, please
complete it.

A I would say this. That probably there is a
trace of carbon monoxide in all cigarette smoke.

Q With respect to cigarettes in general,
whether Lucky Strikes, Camels, Chesterfields, or Phillip
Morris, are the differences found to be insofar as the chem-
ical composition quantitative rather than qualitative,
or would you expect to find some substances are ---

A Are you still talking about carbon monoxide?

Q No. I am talking in general.

MR. DYER: If you know.

A I really don't know. I mean I have never
seen, if I get your picture completely, any type of compari-
son.

Q With respect to any of the substances we
have discussed in this deposition?

ATX02 0244742

Haag - Direct

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1 MR. DYER: I object to that because we
2 have discussed no end of subjects. I do not
3 know which one you are referring to.

4 MR. HASTINGS: I am speaking purely of
5 chemical compounds.

6 A Which ones do you mean?

7 Q Well, the so-called tobacco tar, nicotine,
8 the carbon monoxide, the arsenic?

9 A Of course I read the article in Readers Digest
10 some months ago.

11 Q Regardless of your source, is it your opinion
12 or not your opinion, do all cigarettes contain --and by all
13 I am speaking of Lucky Strike, Chesterfield, Phillip Morris--
14 some tobacco tar, some nicotine, some arsenic, some carbon
15 monoxide, or would some of them have --

16 MR. DYER: If you know now.

17 A I wouldn't know. I could not make a general
18 statement.

19 Q Do you think all cigarettes contain nicotine?

20 A I understand there is one on the market now
21 that does not contain any nicotine.

22 Q Which has tobacco in it?

23 A It doesn't have tobacco in it.

24 Q Let's restrict it then to the first four
25 cigarettes again. Do you think that they have nicotine?

ATX02 0244743

Haag - Direct

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1 Do you think Lucky Strike has nicotine in it?

2 A Yes.

3 Q You feel pretty sure of that?

4 A Well, I have not seen any analyses, but I
5 should think it would contain nicotine in both the tobacco
6 and the smoke.

7 Q You think it would have also this so-called
8 tobacco tar in it?

9 A Now on that we will have to define what we
10 are talking about, what we mean by the term "tar."

11 Q What do you mean by the term "tar"?

12 A Let me ask you what you are asking me. What
13 you would like for me to answer?

14 Q If I were sworn in as a witness you could ask
15 me these questions, but you are supposedly the expert and
16 the consultant. Now have you ever used the term with respect
17 to Lucky Strike cigarettes in your position as consultant
18 with the American Tobacco Company, the words "tobacco tar"
19 with respect to their cigarettes, Lucky Strike?

20 A Yes, I have used the term "tar" but there
21 would be chloroform soluble materials, as one step of the
22 purification.

23 Q Is tobacco tar to your knowledge the substance
24 that has been used in the experiments, shall we say, of Dr.
25 Wynder, or don't you know whether it has been the tobacco tar?

ATX02 0244744

Haag - Direct

33

1 MR. DYER; I object to that, as counsel
2 has referred to some unspecified experiments
3 by Dr. Wynder which cannot be testified to by
4 a witness, and thus to bring into the record in
5 this case that material, when the paper itself
6 is inadmissible.

7 A I do not recall just how his- - He prepared
8 a preparation that he referred to as "tars."

9 Q But you don't know whether it was or was not
10 "tar" that he used?

11 A He referred to them as "tars" I think.

12 Q Does Lucky Strike contain to your knowledge
13 carbon monoxide?

14 A I think we went into that.

15 Q I just want to clarify that now. Does it or
16 doesn't it?

17 A I have not seen any analyses of it, but I
18 would say that all cigarettes would contain a trace of
19 carbon monoxide.

20 Q That would include Lucky Strikes then?

21 A Yes.

22 Q Do you know whether Lucky Strike has arsenic in
23 it, a content of arsenic?

24 A I have not seen an analysis on that. I have
25 not seen an analysis for arsenic.

ATX02 0244745

Haag - Direct

34

1 Q Are you familiar with or do you know of Dr.
2 Clarence Cook Little?

3 A I have met him.

4 Q And in this particular field that we are
5 discussing right now, that is tobacco and the possible
6 relationship of tobacco and cancer, would you say that Dr.
7 Little is a respected authority in the field?

8 MR. DYER: I have no objection to the
9 witness answering the question, but I do
10 want to object to the form of it because it
11 incorporates a possible causation or association
12 between smoking and lung cancer.

13 A It is always hard for me to define an authority.
14 He is a well-known man, and a highly respected man.

15 Q I believe what I am getting at is this:
16 There are certain people that are doing work tending to
17 prove or possibly disprove the relationship between smoking
18 and cancer, is that true, or not true?

19 A Oh, yes.

20 Q And some of these people, Doctor, are
21 shall we say reputable, respected authoritative people, and
22 others may not be, would that be true?

23 MR. DYER: I object to the form
24 of that question.

25 Q In your opinion, I mean?

ATX02 0244746

Haag - Direct

35

1 A I don't want to evade your questions, but
2 it has always been very difficult for me to define an
3 authority.

4 MR. DYER: The question is too broad.

5 A That is except in a very few instances, unless
6 I know the man very well personally.

7 Q You do not know Dr. Little then, I take it?

8 A I have met him; that's all. He has a fine
9 reputation. I should think that whatever he said would be
10 reliable. But I think you asked me whether or not he was
11 an authority, and as I said, I have difficulty in my own
12 mind defining the term "Authority," because in medicine
13 actually to me there is only one authority, and that is
14 the U.S. Pharmacopeia. They are legal authorities. What
15 is in there is authority, whether you like it or not. But
16 these other things have never -- I have never been able,
17 frankly, in my own mind, to define to my own satisfaction,
18 except as I said in one or two instances, who really is an
19 authority.

20 Q Do you believe that tobacco smoke, and in that
21 I am including Lucky Strike tobacco smoke as well as
22 others, causes by reason of smoking them, irritation to
23 the lungs?

24 A You are speaking now of visible irritation?

25 Q Well, visible or symptomatic irritation?

ATX02 0244747

Haag - Direct

36

1 A I should think that one would get a sense of
2 irritation of the throat and possibly upper parts of the
3 respiratory passages from smoking any cigarette. That is in
4 my opinion largely subjective rather than objective, the
5 type of irritation.

6 Q By subjective, would you just define what you
7 mean, as opposed to objective?

8 A That one senses a stinging sensation,
9 whereas that does not necessarily imply that any tissue change
10 has occurred incident to the sensation of irritation.

11 Q Then in your opinion, Doctor, I take it you
12 do not believe that there is that objective change, that ob-
13 jective changes do occur with shall we say smoking a pack
14 of cigarettes a day?

15 A I don't think it has been shown.

16 Q Then it is not a chronic irritant then certainly?

17 A It is not a chronic objective irritant.

18 Q That is your opinion?

19 A That has not been shown to be a chronic
20 objective irritant.

21 Q Have you seen this publication known as
22 Tobacco and Health, which is published by the Tobacco
23 Information Committee, representing tobacco manufacturers,
24 growers, and warehousemen?

25 A I see that occasionally, yes.

ATX02 0244748

Haag - Direct

37

1 Q Do you know who the Tobacco Information
2 Committee is?

3 A Haven't the slightest idea.

4 Q Do you personally approve the particular
5 statements in this particular publication of Tobacco and
6 Health?

7 MR. DYER: You mean by "approve"
8 whether they are submitted to him for approval,
9 or whether he agrees with them?

10 Q I mean submitted to you for approval?

11 A I have no connection whatsoever with the
12 Tobacco Information Committee.

13 Q With respect to those studies that I mentioned
14 a little earlier, did you ever personally have discussions
15 with any of those men with respect to their studies, such as
16 Dr. Wynder, Dr. Auerbach, or any of the people on the
17 Tobacco Health Study of the National Cancer Institute,
18 the National Heart Institute, the American Cancer Society,
19 and the American Heart Association, that four group, or
20 Hammond and Horne, or Doll and Hill, have you personally
21 ever discussed that with any of them?

22 A I don't think I have discussed their work. I
23 know Dr. Wynder, and I have been at informal affairs with
24 him. And I have met Dr. Hammond. But as far as I recall
25 I don't believe I have discussed - - now I am trying to

ATX02 0244749

Haag - Direct

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1 recall if Dr. Wynder and I weren't on a panel a few years
2 ago together, but I am not sure about that.

3 Q You mentioned this before, now let me ask
4 you what is your opinion of Dr. Wynder as a research man,
5 also Dr. Hammond?

6 MR. DYER: I object to the form of the
7 question because it calls for an opinion of one
8 professional person as to the professional
9 capacities of another.

10 Q Would he be an authority or not an authority
11 in this particular field that we are discussing.

12 MR. DYER: Same objection.

13 A As I said a few minutes ago, I have never been
14 able to in my own mind define the term "authority."

15 Q Is he well versed in his field, or not well
16 versed?

17 MR. DYER: Same objection.

18 A Which one are we talking about now?

19 Q Say Dr. Wynder?

20 A He has written a great deal in the field.

21 Q In your work as consultant with the American
22 Tobacco Company, have you had occasion to consult with
23 people other than those here in Richmond, that is to say
24 any of their personnel in New York City?

25 A I suppose you could call it consultation.

ATX02 0244750

Haag - Direct

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1 There was a brief discussion that I had with Mr. Heimann.

2 I think I had a discussion with him some years ago in connec-
3 tion with supplying certain data we needed to write a paper.

4 Q Who is Mr. Heimann?

5 A I don't know, frankly.

6
7 BY MR. DYER:

8 Q Just for the purpose of clarifying the record,
9 in connection with one question that Dr. Hastings asked you,
10 you did not mean to imply that you were conferring or talking
11 with the representatives of the American Tobacco Company
12 twenty-five years ago about this present controversy?

13 A Not in the least bit.

14 Q With respect to the effects of smoking cigarettes-

15 A What I really meant was that beginning twenty-
16 five year ago I was conferring with American Tobacco Company
17 bearing on problems incident to biological studies, dealing
18 with cigarette smoke and cigarette constituents.

19 Q Would you give us briefly, Doctor, your
20 educational background, and then thereafter your medical
21 experience, the positions you have held, and the various
22 societies or medical associations with which you have been
23 affiliated, or any positions held in those societies?

24 A Well, I received my degree in pharmacy from
25 the School of Pharmacy of the Medical College of Virginia

ATX02 0244751

Haag - Direct

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1 in 1923, and was registered as a pharmacist by the State
2 of Virginia in the same year.

3 Subsequently I prepared for pre-medical work at
4 William and Mary, and elsewhere. Received my degree in
5 medicine from the School of Medicine of the Medical College
6 of Virginia in 1928. Then I spent a year or so at Cornell,
7 in the Department of Pharmacology, at the same time working
8 in the bone and joint hospital.

9 Then I came back to Richmond, I think as Assistant
10 Professor of Pharmacology and Physiology. Then went abroad
11 to study in Munich, Germany, for about six months, I think,
12 during '31, well, during 1930 or 1931. Then I returned
13 again to Richmond, and was made Associate Professor of Physiology
14 and Pharmacology, then Professor of Pharmacology, which
15 position I still hold.

16 In 1947 or thereabouts, I was appointed Dean of the
17 School of Medicine, which position I held for three or
18 four years, until I think 1950 actually. That I think
19 covers the academic field.
20
21
22
23
24
25

REDACTED

ATX02 0244752

Haag - Direct

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REDACTED

Q Have you published any articles in the medical or allied journals, if so, approximately, how many?

A I have. I would say approximately - - now this is either solely or as a joint author - 150 or 160.

BY MR. HASTINGS:

Q Have you ever owned any stock in the American Tobacco Company?

A Yes. Years ago. I disposed of it.

Q Isn't the American Tobacco Company one of the main monetary contributors to the medical school that you are associated with, as shown in their catalog? I am speaking of private corporations now who made contributions?

ATX02 0244753

Haag - Direct

42

1 A You are excluding the government now?

2 Q Yes. Speaking of private corporations?

3 A I really - - I wouldn't be able to say definitely.

4 It is one of the major ones, I would say.

5 Q It is one of the major ones?

6 A Yes. I think that is a fair statement.

7 And further this deponent saith not.

8
9
10 SIGNATURE WAIVED.

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14
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16 NOTE: Off-the-record discussion.

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ATX02 0244754